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JAMES STREET MARINA EXPANSION
HAMILTON HARBOUR
INITIAL ASSESSMENT

Canada's Heartland Harbour





HARBOUR COMMISSIONERS

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JAMES STREET MARINA EXPANSION
HAMILTON HARBOUR
INITIAL ASSESSMENT

FINAL REPORT

prepared by

M.M. DILLON LIMITED

for

PUBLIC WORKS CANADA

2907-01

MAY 1990

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1. INTRODUCTION

The Hamilton Harbour Commission is proposing to expand the existing facilities at the James Street Marina to increase the recreational amenities in Hamilton and the surrounding area, provide greater public access to the waterfront, add to the diversity of uses in the harbour area and improve shoreline aesthetics.

The proposed marina expansion involves the creation of an island breakwater, the addition of approximately 316 boat slips, the expansion of parking facilities, and landscaping activities. The island breakwater has been designed to provide protection for the marina, expand public park space and shoreline access, and incorporate fish habitat enhancement initiatives.

The purpose of this assessment is to identify potential natural environment and socio-economic impacts that may result from the construction and operation of the marina. By conducting this assessment early in the planning stage of the undertaking, environmental considerations and mitigative measures can be incorporated into the final design.

Upon completion of the assessment a decision concerning the proposed expansion at the James Street Marina can be formulated. If there are no adverse effects associated with the project or mitigative measures are being incorporated in the design to deal with these problems, the project may proceed. If upon completion of the assessment, activities are identified which could produce unknown or potentially negative effects further investigation is required and must be documented in an Initial Environment Evaluation (I.E.E.) if the project is to proceed.

2. PROJECT DESCRIPTION

The description of the undertaking is provided below under the following headings:

- Site Preparation
- Construction
- Operation and Maintenance

This classification is used in the evaluation of impacts in Section 6.0.

The concept drawing for the proposed expansion is shown in Figure 1.

Site Preparation

The preparation of the site for expansion and construction will consist of a number of activities including:

- clearing of near shore vegetation consisting of manicured grasses and some small shrubs.
- realignment of shoreline area by in-filling (from the exiting parking lot area to the public park point) an average of 10-15 m.
- drainage installation for construction, including the collection of stormwater.
- possible temporary storage of fill material prior to or during fill placement.

Construction

- placement of fill for island breakwater.
- stabilization and shaping of slopes along infilled shoreline and island breakwater.
- creation of suitable fish habitat along shoreline and island breakwater using rubble and rip rap slopes.
- placement of floating breakwater involving timber and steel pipe floats anchored into position and navigational lighting.
- fixed and floating walkways.
- expansion and surfacing of parking lot.
- landscaping activities.

Operation/Maintenance

- movement of vessels and people in marina area.
- recreational activities in marina and park areas.
- movement of vehicular traffic to and from the marina site.

3. BACKGROUND

3.1 Hamilton Harbour Fisheries

Fisheries Resource

Historically Hamilton Harbour was one of the most diverse and important fish habitats in western Lake Ontario. The Harbour supported a cold water fishery dominated by lake trout, white fish, and lake herring. The marshes on the south and west shores provided essential spawning, nursery and adult habitats for warm water species, in particular pike and bass.

The warm and cold water fishery has declined since the late 1800's largely as a response to overfishing, competition from introduced species, water quality deterioration, and loss of habitat.

Today Hamilton Harbour supports approximately 59 fish species. Although still considered a diverse fishery, the community structure has shifted from larger, common predator species to smaller, short-lived forage species characteristic of eutrophic environments.

Typical harbour species include alewife and white perch as well as Lake Ontario species which migrate into the harbour to feed and/or spawn. Such species include white suckers, yellow perch, brown trout, spottail shiners, and rainbow smelt. The number of migratory fish are highest during the spring and summer.

Aquatic Vegetation

The health and survival of any fish community is largely dependent on a diverse and abundant supply of aquatic vegetation. Vegetated areas are used by virtually all fish species for at least some of their life functions such as spawning, raising young and feeding. However, the abundance of aquatic plants is influenced by many factors including light conditions, water levels, nutrient loadings, substrate characteristics, ice scour and lake morphology. Many of these factors serve as controls on the aquatic vegetation community of Hamilton Harbour.

The distribution and relative abundance of aquatic vegetation in Hamilton Harbour was assessed in 1987 for the Remedial Action Plan Study. Results from the study include the following items:

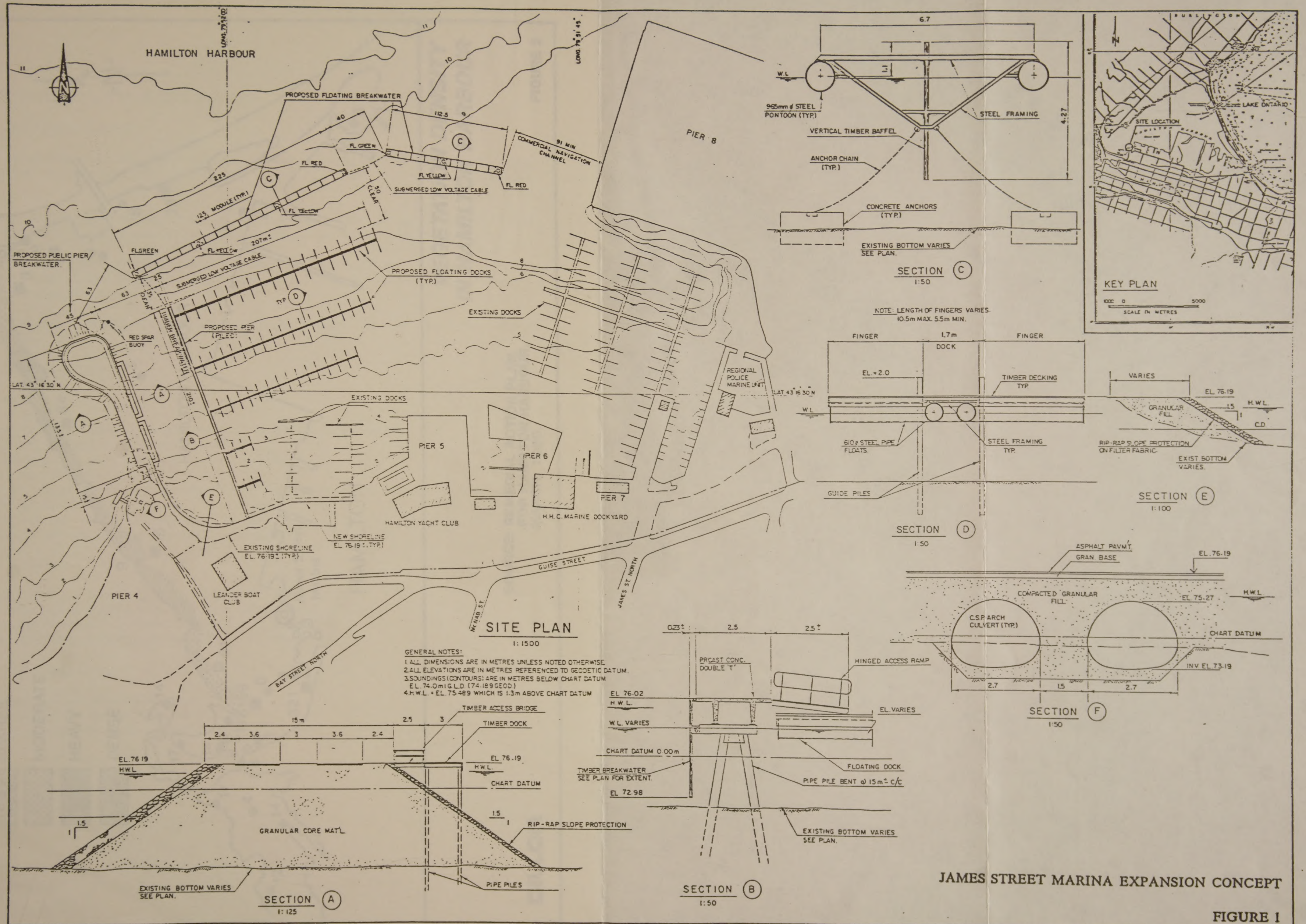
- aquatic plants were rarely found at depths greater than 2 m due to poor light penetration;
- plants were virtually absent along the shore east of the Hamilton Yacht Club due to constant wave action and poor light penetration;
- near shore conditions such as suspended sediments from wave action may be limiting light penetration in areas less than 2 m in depth;

- at Lasalle Marina on the north shore of the Harbour the presence of docks and wave barriers has reduced wave action, thus decreasing suspended sediments and light limitations; the sheltered area near the marina is characterized by dense vegetation;
- areas with increased abundance of plants (i.e. in protected areas) have decreased effects of wave action and have stabilized bottom sediments.

Vegetation densities in the harbour are shown in Figure 2.

Several habitat remediation measures were recommended in the Hamilton Harbour Remedial Action Plan Discussion Document, March 1988. The following provides a list related to the James Street Marina expansion undertaking.

- Light penetration appears to be one of the most important factors limiting growth of submerged plants. Remediation actions should be designed to create habitat by creating sloping shores or adding fill to extend littoral areas.
- Protected embayments will encourage submerged plants, provide additional protection to the existing shore and move the high energy wave impacts to the deeper water.
- Where possible submerged cover (e.g. brush bundles, rock cribs, etc.) should be added to provide protective cover.

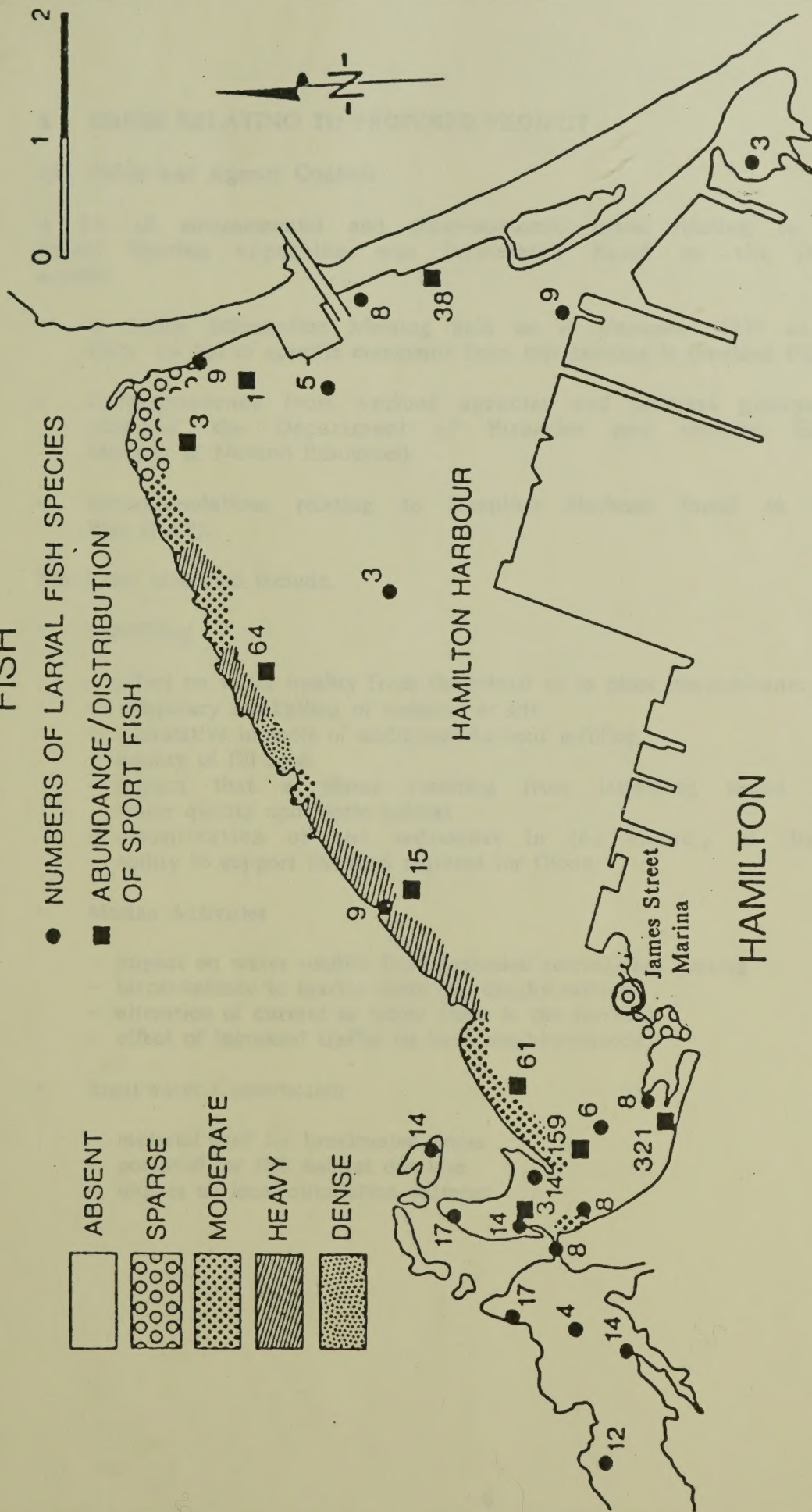
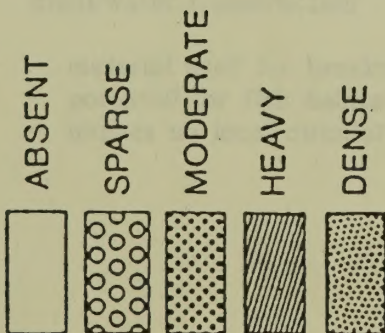


JAMES STREET MARINA EXPANSION CONCEPT

FIGURE 1

FISH

- NUMBERS OF LARVAL FISH SPECIES
- ABUNDANCE/DISTRIBUTION OF SPORT FISH



VEGETATION DENSITY IN HAMILTON HARBOUR

SOURCE: REMEDIAL ACTION PLAN
FOR HAMILTON HARBOUR,
MARCH, 1988.

DILLON

FIGURE 2

4. ISSUES RELATING TO PROPOSED PROJECT

4.1 Public and Agency Contact

A list of environmental and socio-economic issues relating to the proposed James Street Marina expansion was formulated based on the following information sources:

- A Public Information Meeting held on 19 December 1989 at the Hamilton Yacht Club. (A list of specific comments from this meeting is provided Figure 3).
- Correspondence from various agencies and interest groups. (Agency contact included the Department of Fisheries and Oceans, Environment Canada, Ministry of Natural Resources).
- Recommendations relating to Hamilton Harbour found in the Remedial Action Plan (RAP).

The issues identified include:

- Lakefilling
 - effect on water quality from the release of in place contaminants
 - temporary stockpiling of material at site
 - cumulative impacts of additional harbour infilling
 - quality of fill used
 - impact that a plume resulting from lakefilling would have on surrounding water quality and biotic habitat
 - classification of the sediments in the vicinity of the project and their ability to support the load required for filling.
- Marina Activities
 - impact on water quality from increased recreational boating
 - inconvenience to marina users (eg. dinghy sailors)
 - alteration of current or water flows in the Harbour
 - effect of increased traffic on local neighbourhoods
- Breakwater Construction
 - material used for breakwater slopes
 - potential for fish habitat creation
 - impact on local circulation patterns

FIGURE 3
SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
Ryan Scott	• Impressed with the marina expansion project. • Marina an asset to the waterfront. • Concern over exposure to northeast wind, but problem appears to be addressed by the placement of floating breakwalls.	• Proposal meets the RAP goals of increased access to the Harbour.
Paul Muldoon (Hamilton Environmental Action Team (HEAT))	• Insufficient documentation to fully assess merits of proposal. • Not clear how the EARP process interrelate with the Waterfront Park. • Concern over further infilling of the Harbour.	• The Public Information Session was planned to provide preliminary plans at an early stage. • The park is being initiated by the Hamilton Harbour Commissioners and is a federal initiative subject to the provisions in EARP. • All fill will meet provincial guidelines.
W.P. Lipischats	• General concepts/design very good. • Concerns regarding access and security.	• A new access to the marina is being designed.

FIGURE 3
SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
Murray Charlton (Burlington Sailing and Boating Club)	• Breakwater/pier should be designed in consultation with fisheries experts to provide maximum fishing. • Park benches should be placed on the island breakwater. • Boat launching ramp for visiting boaters should be created. • Scheme looks good.	• The Department of Fisheries and Oceans will be consulted. • Suggestion being considered by marina designer. • The proposed expansion does not provide for a launch ramp for transient boaters.
Serge Metikosh (Department of Fisheries and Oceans)	• Infilling of harbour and breakwall construction will result in a loss of fish habitat and will require DFO authorization under the <u>Fisheries Act</u>. • Conceptual designs suggest that opportunities exist to create additional habitats such that losses are compensated.	• Department of Fisheries and Oceans will be consulted. • Rip rap slopes will provide new, protected habitat areas.
Murray Thompson	• Excellent proposal and very much needed. • Breakwall is a necessity.	

FIGURE 3
SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
John Farrell (HYC Member)	• Inadequate attention has been paid to the needs of dinghy sailors: - traffic must cross all traffic to new mooring - sailing distance to practice area has more than tripled - practice area must be clear behind the breakwater or the spot for the tour boats - area for all dinghy storage, transport and set-up is not adequate for future planned growth of junior club • Distance between Pier 3 and new main docks and fingers is inadequate for manoeuvring 30-37 foot boats. • When Pier 2 and 3 become obsolete, does HYC lose all docks they presently own?	• The placement of all marina facilities was carefully considered in the overall marina concept. • Adequate space for manoeuvring was considered in the marina design.
Art Sarna (Dowsar Marine Supplies Inc.)	• Everything looks good from the proposal presented.	

FIGURE 3
SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
John McDonald	• Great idea to accommodate boats and make a beautiful setting for the public.	• Proposal will meet goals of RAP by improving public access to the Harbour.
George Gage (Leander Boat Club)	• Concern over boat traffic between island breakwater and new slips. • Opposed to dockage on east side of pier. • Docking parallel to shore is not suitable.	
John Whyte	• Impressed with the total project, it is long overdue.	
Kenneth Pearce	• Because of filling in the Bay the lake is polluted all summer. • Utilize shoreline areas of the lake instead of more fill and dock space in the Bay.	• Fill quality will meet provincial guidelines.
Ernie Kablau ('Macassa Bay' Cruise Vessel)	• Good layout, in agreement with all aspects of the project. • Would be willing to place a lighthouse at the end of the island breakwater.	

FIGURE 3
SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
G.K. Rodgers	• Should consider a presentation to the RAP stakeholders. • Question how marina development fits within the total Harbour Plan. • Site area has weak circulation and when combined with sewer overflow discharges could result in poorer water quality.	• The Draft Initial Assessment will be circulated to the RAP stakeholders. • Marina meets RAP goals of increased access, aesthetics and recreational boating needs of the Harbour. • Circulation in marina area will be addressed by the construction of an island breakwater and bridge as opposed to a breakwater connected to the shore. • Stormwater in the parking area will be collected and diverted from marina area.
Brian McHattie (Hamilton Naturalists Club)	• Would like the initial assessment presented to the Hamilton RAP/ stakeholders. • Good opportunity for fish habitat enhancement along public pier. • A public declaration of the source of fill would help to satisfy public fears. • Investigations of floating breakwater design for waterfront is desired.	• The Draft Initial Assessment will be reviewed by RAP members. • Rip rap slopes will enhance habitat areas. • Fill quality will meet Provincial guidelines.

FIGURE 3 SUMMARY OF COMMENTS FROM PUBLIC INFORMATION SESSION

PARTICIPANT	COMMENTS	RESPONSE
Rolf Essig	• Expansion in general very good. • Bridge for water circulation an excellent idea. • Concerned about traffic to and from pier. • Dinghy boats storage should be as close to the water as possible. • Water access for dry-sailed boats needs to be near water.	

- increased turbidity impacts on fish migration and aquatic habitat
- impact on sedimentation patterns; changes in patterns may increase the likelihood and frequency of maintenance dredging

4.2 Response to Issues

The issues identified through agency and public contact were addressed and mitigation and alterations to the marina design concept were made as required. The following sections summarize the measures taken to address the concerns.

Lakefilling

The quality of fill used for the shoreline works and the island breakwater will be tested according to existing provincial fill quality guidelines. This will ensure that water quality is not degraded as a result of the placement of fill.

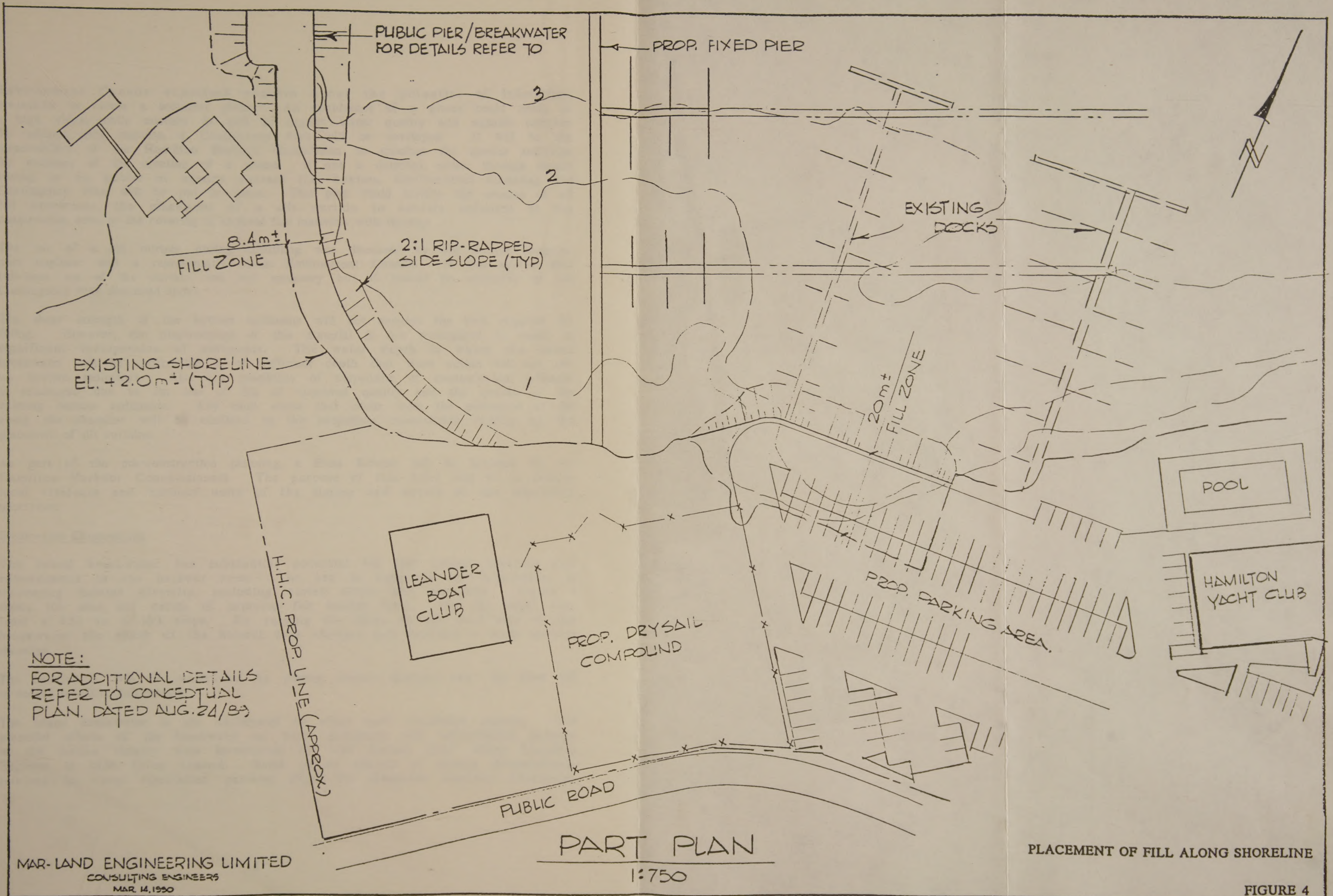
During construction activities, some fill material may be stored on shore prior to placement along the shoreline. To minimize water and wind erosion of this material, the piles will be covered with a tarp or straw bales will be placed on the sides of the piles.

The issue of further harbour filling was raised by many members of the public and representatives from various agencies. The Department of Fisheries and Oceans had few concerns regarding the placement of fill to create the island breakwater as this would provide additional fish habitat in the harbour. Concern was expressed, however, regarding the quantity and extent of fill to be placed along the existing shoreline.

In light of the many concerns over the placement of fill along the shoreline, the marina design was modified to reduce the amount of filling required. It was recognized, however, that some fill was needed in several key areas. A portion of the proposed infilled areas will provide essential "back up land" to support the marina facilities. This is necessary because limited backspace area would result in traffic congestion and parking shortages. Fill will also be used to extend the Hamilton Harbour Commission lands to provide access to the proposed island breakwater park. In the fill zones, any fish habitat displaced will be compensated by the placement of a 2:1 slope overlain with rip rap. Rip rap, especially when it consists of rocks of different sizes, provides a diverse habitat for both fish and their prey organisms.

In the remaining shoreline area (in front of the proposed dry sail compound) the proposed shoreline design was altered to retain the existing shoreline. This will reduce fill quantity as well as preserve existing fish habitat.

The modified fill lines for the marina are shown in Figure 4.



Environment Canada expressed concern about the potential of lakefilling operations to create a sediment plume. An occurrence of a plume could result in a high visual/public concern as well as impact water quality and aquatic habitats. To address this concern, a Contingency Plan will be developed. It will be the responsibility of the Hamilton Harbour Commission to monitor the marina activities for evidence of the creation of a plume. If one is detected, either through monitoring or by public or agency contact (i.e. boaters, Environment Canada), the Contingency Plan will be put in place. This plan could involve the ceasing of all fill operations, the placement of a silt curtain to contain sediment in the construction area, or the covering of exposed fire materials with rip-rap.

The use of a silt curtain during lakefilling was discussed by the marina designer, port engineer and a representative from Environment Canada. It was agreed that full-time use of the curtain was not necessary but it should be employed in the Contingency Plan discussed above.

The shear strength of the bottom sediments will not support the load required for filling. However, the displacement of this material is not anticipated to result in significant resuspension of sediments. The water depth in which the island breakwater will be constructed is of sufficient depth that wave action will not stir up bottom sediments. Also the possibility of suspension of contaminated sediment is minimized due to the use of fill of approved quality and the quality of the existing bottom sediments. Any mud waves that occur from the placement of fill along the shoreline will be confined to the immediate construction vicinity by the placement of silt curtains.

As part of the pre-construction planning, a Press Release will be initiated by the Hamilton Harbour Commissioners. The purpose of this brief will be to inform local residents and harbour users of the timing and nature of the lakefilling operations.

Breakwater Construction

The island breakwater has substantial potential for fish habitat creation and enhancement in the harbour area. The key in designing the breakwater is increasing habitat diversity, including varied slopes and materials. Figure 5 shows the plan and details of improved fish habitat zones. Rip rap slopes vary from a 1.5:1 to a 10:1 slope. By varying the slope on the west side of the breakwater the width of the littoral zone changes and provides a more natural shoreline.

The breakwater will be constructed by placing coarser material over the finer fill to reduce turbidity and erosion.

The island breakwater is not anticipated to effect local circulation patterns. The potential effects of the breakwater on water circulation and sedimentation patterns in the marina vicinity were investigated by Ivan Lorant, Chief Water Resources Engineer at M.M. Dillon Limited. Based on an analysis of existing documentation relating to water circulation patterns (RAP for Hamilton Harbour, Discussion

Document, 1988; Hamilton Harbour Physical Process, MOE, 1978) and Canadian Hydrographic Service Maps, it was anticipated that the construction of the island breakwater will have minimal effect on circulation and sedimentation patterns. This is primarily due to the distance of the marina from the in-flow area at Desjardins Channel and the entrance to Lake Ontario.

Vertical circulation of water in the harbour area should increase due to the placement of the island breakwater in significant water depths.

There are two storm sewer outflows in the marina vicinity. The Marshall drain is located west of Pier 4 park and is not likely to affect water quality in the marina area. The James Street drain outflow is at the base of James Street in the docking areas to the east of the proposed expansion areas. This drain carries storm water and has sewer overflow capacity. According to the manager and assistant manager of the marina, no reports of poor water quality or poor circulation due to this outflow have been received. Sewer outflows in Hamilton Harbour are shown on Figure 6.

Maintenance dredging will not be required in the marina area due to existing adequate water depths.

Marina Activities

The marina activities are not likely to alter the currents or water flows in the harbour area. The marina is at a great enough distance from the inflow at Desjardins Channel and the entrance to Lake Ontario to have minimal effect on water movements within the harbour.

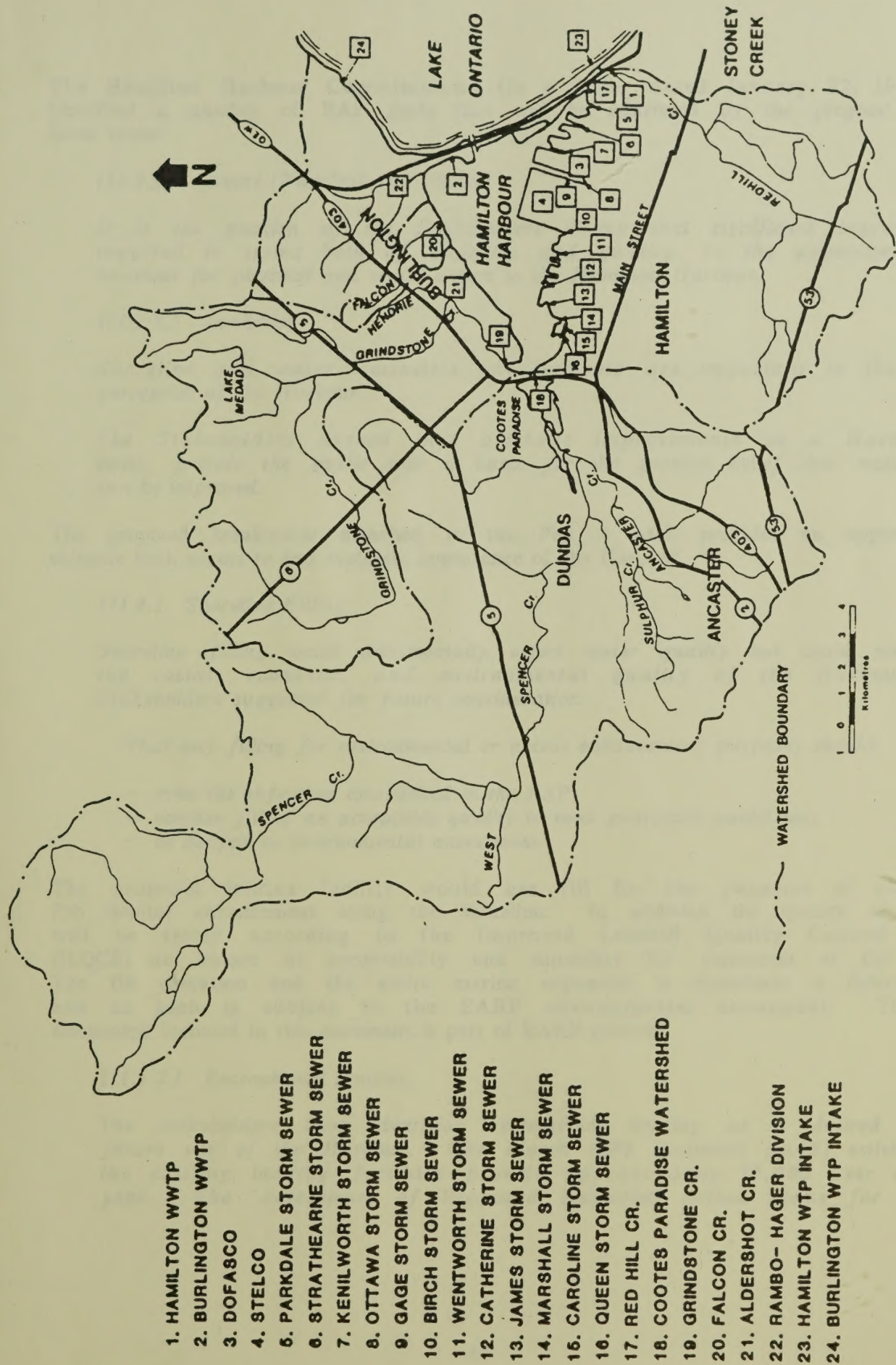
The possible inconvenience to marina users as a result of the proposed design was considered by the proponent and the marina engineers. The placement of facilities was discussed during the initial stages of the marina design with the proposed alternative being considered the best overall package.

The effect of increased boating activity on water quality was not considered to be substantial given the existing number of vessels currently using the harbour area.

The effect of the expanded marina on local traffic was also considered in the marina design. The entrance to the marina was relocated to direct marina traffic away from the low income housing at the same grade as the marina. The new entrance will also be separated from other residential areas by a substantial grade which will act as a terrain buffer. This grade separation in addition to the relocated entrance should minimize any effects of vehicular traffic on the surrounding neighbourhoods.

4.3 James Street Marina Expansion and the Hamilton Harbour RAP

One of the concerns raised by the public and interest groups is the relationship between the proposed James Street Marina Expansion and the goals and objectives stated in the Hamilton Harbour RAP document.



HAMILTON HARBOUR WATERSHED-OUTFLOWS

FIGURE 6

ОБЩЕОБРАЗОВАТЕЛЬНАЯ ПРОГРАММА ПО ГЕОГРАФИИ



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The Hamilton Harbour Commissioners (in a letter dated January 22, 1990) have identified a number of RAP goals that will be addressed by the proposal and are listed below:

III.2.2.3 Access (Physical and Visual)

It is the position of the Stakeholders' Group that significant improvement is required in terms both of quantity and quality, to the opportunities and locations for physical and visual access to the Hamilton Harbour.

III.2.2.5 Aesthetics

Shoreline and water aesthetics improvements are important in the public's perception of the Harbour.

The Stakeholders agreed that aesthetic improvements on a Harbour-wide basis, provide the public with a basis for the genuine belief that water quality can be improved.

The proposed breakwater attached to the Pier 4 park provides an opportunity to enhance both access to and aesthetic appearance of the Harbour.

III.4.1 Shoreline Filling

Shoreline filling could detrimentally effect water quality but could also benefit the social, economic, and environmental quality of the Harbour. The Stakeholders suggested for future consideration:

That any filling for environmental or access enhancement purposes should:

- meet the objectives established in the RAP;*
- contain fill of an acceptable quality to meet provincial guidelines;*
- be subject to environmental assessment.*

The proposed marina facility would use fill for the purposes of access and fish habitat enhancement along the shoreline. In addition the quality of fill used will be tested according to the Improved Lakefill Quality Control Program (ILQCP) to ensure its acceptability and suitability for placement at the Harbour. The fill operation and the entire marina expansion is considered a federal project and as such is subject to the EARP environmental assessment. The initial assessment included in this document is part of EARP process.

III.5.2.1 Recreational Boating

The stakeholders have identified recreational boating as a desired use and future use of the Harbour. The March 1988 document (p.48) estimated that the existing boating facilities provide approximately 78,000 user days per year. The "Assessment of Proposed Remedial Action Plans for Hamilton

Harbour" prepared for the M.O.E. April 1988 (p.2-4) using the Ontario Recreation Supply Inventory method estimated the Harbour capacity to be 207,000 user days. The H.H.C. Marina Proposal would ultimately increase slips in the Harbour by 316 or an additional 7,742 user days. This number added to the total estimated recreational boating of 78,000 user days increases the total use at about 85,742 user days or 121,258 user days less than estimated capacity for such use.

4.4 Consultation With Hamilton Harbour RAP Stakeholders

The Draft Initial Assessment Report was circulated to Hamilton Harbour RAP Stakeholders and a presentation of the proposed undertaking was made at the RAP Stakeholders' Meeting on 28 March 1990. The brief notes from this meeting are included in the Appendix. Following the presentation, the Stakeholders were invited to submit written comments to the Hamilton Harbour Commission concerning the proposed marina development. Submissions were to be received before 11 April 1990.

As of 18 April 1990, three weeks following the RAP Meeting, no written comments were received from the RAP Stakeholders.

5. PROCEDURE FOR INITIAL ASSESSMENT

5.1 Source Material

A number of sources were consulted to define the procedure for this initial assessment. These include:

- Technical Guide to the Environmental Screening of Dredging Projects and Marina Developments in Eastern Canada, Conservation and Protection, Environment Canada.
- Guide for Environmental Screening, Federal Environmental Assessment Review Office.
- Description and Relevant Issues of proposed project as outlined above.

5.2 Method

An initial assessment of the proposed marina expansion activities was undertaken to determine the significance of the impacts on the existing natural and social environmental conditions in the marina area. Information on baseline conditions was gathered through background documents including the Hamilton Harbour Remedial Action Plan, surveys of the area, and site reconnaissance. In particular, six key areas that could be affected by the development were examined. These were:

- Aquatic Habitat
- Fish Habitat
- Water Quality
- Drainage Characteristics
- Flow Variation
- Social Resources

The matrix shown in Figure 7 was prepared and lists all the proposed activities as well as the possible areas of environmental impact identified above.

The potential impacts on each of the key areas by the proposed marina activities were explored using the evaluation criteria listed in Figure 8.

Mitigation and enhancement opportunities were identified where possible to address potential impacts.

Following the review of possible mitigative measures the resultant impacts of activities were predicted. The activities were identified as having one of the following:

MATRIX TO ASSESS MARINA EXPANSION
IMPACTS ON THE SURROUNDING ENVIRONMENT

FIGURE 7

Areas of Environmental Effect	Activities in Marina Expansion															
	Site Preparation	Clearing Vegetation	Excavation	Drainage Installation	Material Storage	Construction	Filling	Bank Stabilization	Floating Breakwater	Placement of Launch Ramp	Placement of Support Structures	Completion of Dock Structures	Placement of Bridge to Island Breakwater	Landscaping	Parking Lot	Operation/Maintenance
Aquatic Habitat																
Benthic Organisms																
Fish Habitat																
Spawning Areas																
Nursery Areas																
Feeding Areas																
Migration Routes																
Water Quality																
Surface Water Quality																
Ground Water Quality																
Sediment Quality																
Sediment Loadings																
Drainage Characteristics																
Erosion																
Flow Variation																
Flow Interference																
Littoral Transport																
Social Resources																
Aesthetics (Quality of Life)																
Navigation																
Recreation																

Legend:

Degree of Environmental Impact:

- ☐ Positive impact
- ☐ Unknown impact
- ☐ Negative impact
- ☐ Very significant negative impact
- ☐ Not applicable

FIGURE 8: ASSESSMENT CRITERIA

<u>Criteria</u>	<u>Definition</u>	<u>Example</u>
1. Magnitude	The probable severity of each potential impact based on the extent, reversibility and/or recovery rate of the impact.	A short-term impact would be considered to be of smaller magnitude than a long term impact.
2. Prevalence	The degree of impact that a specified project has as a consequence of cumulative effect.	Several small developments may have localized impacts of small importance, however, the cumulative effect of a number of projects may have widespread significant impacts.
3. Mitigation	The availability of solutions to alleviate the identified impact.	Design and technical measures which can be utilized to control a negative effect such as a silt screen for minimizing the impact from suspended solids.
4. Duration	The length of time associated with both the activity and its possible effects.	Whether the activity is short term within a finite period or ongoing and repetitive over a long term.
5. Frequency	The amount of time between operations during which the site will be able to recover.	The time lapse between maintenance dredging operations (the greater the time the more opportunity for recovery).
6. Risks	The degree of probability of serious, unaccounted for, environmental effects.	A natural or anthropogenic event causing a previously minor project impact to become a significant concern.
7. Importance	The value attached to a specific area as a result of such things as its locations, uniqueness or importance for local wildlife.	The value of a wetland may be enhanced if it provides a nesting habitat for an endangered species.
8. Public Concern	The social implications associated with a project.	Opposition to a harbour development due to disruption of existing use.

- positive impact
- negative impact
- very significant negative impact
- no impact
- unknown impacts.

The assessment procedure discussed above was summarized in tables for all of the marina activities. A summary of the predicted impacts following mitigation and enhancement was used to complete the matrix.

Upon completion of the matrix, activities which could result in unknown or potentially negative effects were identified. If these impacts are considered significant following the agency review the initial assessment process may be upgraded to include the completion of an Initial Environmental Evaluation (IEE). In an IEE a more detailed assessment is required to identify environmental consequences and to assess their significance.

6. PRELIMINARY ASSESSMENT OF ACTIVITIES

As described in the method, a set of tables was prepared to assess the possible impacts of proposed marina expansion activities on the existing environment. The tables shown in Figure 9 include the following information:

- the proposed activity
- areas of environmental effect
- potential impacts of activity
- comments/mitigation measures
- summary of evaluation

The impacts listed in the summary column of the table were inserted in the matrix (Figure 10) to provide an overall assessment of the proposed project.

FIGURE 9
PRELIMINARY ASSESSMENT OF ACTIVITIES

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
<u>Site Preparation</u>				
• Clearing vegetation	• Aquatic habitat • Fish habitat • Water quality	• The lack of soil cover and a continuous root network in construction areas may result in the uncontrolled discharge of sediment into the surrounding water body. • Levels of suspended solids by sediment loadings may smother benthic organisms and irritate gills of fish.	• Clearing operations will be minimal and likely restricted to access roads and the area immediately adjacent to the water. • Vegetation will only be removed as necessary and replanting shall occur upon completion of site grading/filling. • Mitigated during construction	• Minimal negative impact.
	• Flow variation • Social resources	• Minimal, short-term impacts.	• Clearing should be scheduled to avoid fish spawning.	• Minimal negative impact.
• Excavation	• Aquatic habitat • Fish habitat • Water quality • Drainage characteristics • Social resources	• Rain and wind erosion may create sediment loading problems. • Disruption of recreational uses in the marina area may occur during excavation of older marina facilities (eg. launch ramp, docks, etc.).	• Excavation operations should be scheduled to avoid fish spawning, migration, incubation and nursery periods. • Schedule excavation activities to minimize impact on recreational activities such as avoiding the boating season.	• Minimal negative impact. • Negative impact. • Can be mitigated.

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
• Filling (cont'd)	• Flow variation	• Placement of fill may result in a change to current and circulation patterns and an alteration to wave refraction patterns.	• Marina site is situated away from inflow area at Desjardins Channel and entrance to Lake Ontario; placement of fill will have a minimal effect on harbour current and circulation.	• Minimal negative impacts.
		• The infilling for the breakwater may act as an obstruction interfering with natural currents resulting in an impact on the littoral transport of material or organisms.	• The placement of the floating breakwater prior to filling operations may reduce wave exposure at the fill face.	
	• Drainage characteristics	• Fine grained fill subject to resuspension may result in a redistribution of sediment away from the fill placement site.	• Smaller sized particles should be capped with larger sized particles in order to minimize resuspension.	• Short-term negative impact.
			• Fine grained fill should be covered with a protective cover (such as geotextile membrane) and stabilized with rip rap as soon after filling operation as possible.	
	• Social resources	• Disturbance to users of marina and nearby residents from increased truck traffic and machinery noise.	• Disruption effects will be short-term.	• Minimal negative impact.
			• Fill operations should be avoided in periods of heavy marina use (i.e. summer).	• Largely mitigatable.
			• Conduct activities during weekdays avoiding evenings and weekends when local residents are more likely to be in the area.	

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
• Filling (cont'd)		• Filling operations will affect navigation particularly in the island breakwater area. • Noise from the operation and the visual disturbance of machinery will affect the quality of the recreational uses at the marina. • Sediments and by-products of construction may be carried into the Harbour.	• Conduct work to avoid busy boating seasons. • Mark active area of fill operations with a flood light • Conduct work to avoid heavy recreational uses of site. • Utilize good management practices to minimize environmental damage.	• Minimal negative impact.
• Drainage Installation	• Water quality • Drainage characteristics			
• Material Storage	• Water quality • Drainage characteristics	• Fill stockpiles located near the shore are susceptible to erosion and may create short-term suspended sediment problems.	• Minimize the time the fill material is left in the stockpile and place stockpiles as far as possible from shore. • Place straw bales or sides of piles or cover stockpiles with a tarp to reduce wind and water erosion.	• Impacts mitigatable.

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
<u>Construction</u>				
• Bank Stabilization	• Water quality	• Sediment may become suspended from the placement of material.	• A synthetic cloth or granular filter should be used to prevent erodible sub-grade from migrating into the voids between the rock and be subject to erosion. • Employ bank stabilization measures as soon after infilling as possible to protect slopes from erosion. • Continued maintenance and monitoring of stabilization measures will indicate areas of weakness and where resuspension of sediments may be occurring.	• Minimal negative impact. • Long term effects will be positive as rip rap slopes will absorb wave energy, reduce sediment loadings near the shore, and improve in-shore light conditions.
• Fish habitat • Aquatic habitat		• Placement of rip rap slopes may result in localized temporary turbidity.	• The rip rap slopes used for bank stabilization will be of a suitable slope and material to protect additional habitat for fish and forage species.	• Long-term positive effect.
• Drainage characteristics			• The placement of rip rap will protect shoreline from erosion due to surface runoff, wave action and sediment transport.	• Positive effect.
			• Erosion problems can be further reduced by the placing of vegetative plantings near the shore.	

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
Bank Stabilization (cont'd)	Social Resources	Fish habitat creation will increase numbers of small fish in the area and enhance recreational opportunities.	Stabilization measures can be given a more natural look by planting of shrubs and other vegetation above the rip rap line.	Positive effect.
Placement of Floating Breakwater	- Aquatic habitat - Fish habitat	- Some temporary disturbance to lake bottom habitat from placement of anchors. - Structure may provide additional protective cover for fish and forage species.	- Impacts are temporary. - Minimal bottom vegetation in site area.	- Minimal impact during placement. - Potential for long-term positive impact.
Flow interference	Flow interference	May result in interference with natural currents but impact is minimized as water can flow beneath the structure.	Impacts affect the top layers of water only. This impact is minimal.	Minimal negative impact.
Water quality	- Interference with existing wave patterns. - Some temporary turbidity impacts during placement of structure. - Reduces wave agitation	- Interference with existing wave patterns. - Some temporary turbidity impacts during placement of structure. - Reduces wave agitation	- Impacts affect small area. - Turbidity impacts temporary. - Aids water quality thus improving area for aquatic vegetation.	- Minimal impacts. - Minimal negative impact. - Long term positive impact.
Social resources	- May pose an interference to boating traffic. - Will provide a protected area for boat docking.	- May result in minimal impacts to water circulation. - May pose an interference to boating traffic. - Will provide a protected area for boat docking.	- Circulation impacts minimized because of floating structure. - Structure will be adequately marked for navigational purposes.	- No significant negative impact. - Positive effect as structure provides protection.

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
Placement of Launch Ramp	- Aquatic habitat - Fish habitat	Placement of structure may cover habitat areas along the shoreline.	Loss of habitat will be compensated by the creation of rip rap slopes along the shoreline.	Minimal impact.
	Flow variation	Construction may interfere with natural currents resulting in an impact on the littoral transport of materials.	Effect only applies to a very small area.	Insignificant impact due to limited area of impact.
	Water quality	Runoff from the parking lot may enter the lake via the boat launch ramp resulting in the entering of contaminants into the water.	Design parking lot so that runoff enters drainage culverts rather than running down ramp.	- Impacts mitigatable. - Minimal negative impact.
		Isolated contamination of water may occur from residues on boats and trailers entering the water.	- Locate ramp in an area of good circulation to minimize isolated contaminated water. - Launch ramp is not for public use and is intended for dry sail only.	Impacts negligible. Insignificant number of vehicles and frequency of use compared to heavily used ramps for trailered vessels.
Placement of Support Structures	Social Resources	Ramp will provide additional and/or improved public access to the water.	Sedimentation problems are temporary.	Positive effect due to increased access.
	- Aquatic Habitat - Fish Habitat - Water Quality	- Some temporary suspended sediments is likely during placement of structures. - May provide additional protective cover for fish and forage species.	- Use of open structures avoids interference with fish migration patterns. - Use open type structures to limit impact on littoral transport.	- Minimal negative impact. - Slight positive impact as habitat creation.
	Flow Variation	There may be an impact on the littoral transport of material and organisms	Place structures outside busy boating periods.	Minimal negative impact.
	Social Resources	May restrict navigation in areas of structures.		Minimal impact.

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
• Completion of Dock Structures	• Aquatic habitat • Fish habitat • Water quality	• Placement of structures may provide additional cover for aquatic organisms.		
	• Flow variation	• Some restrictions to natural current and movement of water may occur.	• Construct floating docks to minimize impact on natural currents.	• Minimal impact.
	• Social resources	• Placement of docks provides additional berthing space and increases the recreational opportunities in the Harbour area.		• Positive impact.
• Placement of Bridge to Island Breakwater	• Water quality	• Placement of structure will allow water circulation within the harbour area.		• Positive impact in comparison with a solid breakwater attached to the shore.
	• Social resources	• Increases access to the harbour and island area.		• Positive impact.
• Landscaping	• Social resources		• Activities may enhance aesthetics of marina site and improve environmental quality.	• Positive impact in comparison with a solid breakwater attached to the shore.
	• Water quality		• Plantings can be designed to reduce wind, dust, noise and erosion.	• Positive impact.
• Parking Lot	• Water quality	• Storm runoff from lot could impair water quality.	• Storm drainage should be directed away from confined harbour area. • A vegetative buffer zone should be established between the parking lot and the water. This will enhance visual aspects of the shore from the water and prevent or reduce surface runoff from entering the waterbody.	• Minimal negative impact.

Activity	Areas of Environmental Effect	Potential Impacts	Comments/Mitigation	Summary/Information Requirement
<u>Operation/Maintenance</u>				
• Vessel Movement	• Aquatic habitat	• Possible effect of increased wave action on sensitive inshore fish habitat.	• Restrict speed of boats to reduce wake in areas of sensitive shoreline habitat.	• Minimal impact.
	• Fish habitat			
	• Flow variation			
	• Water quality	• Potential for impacts to water quality due to gas spills, etc.		• Minimal impact.
	• Social resources	• Increased number of boats in marina and harbour area may cause congestion problems.	• Capacity calculation for boating in the harbour area will not be exceeded due to additional boating activity from the marina.	• No impact.
• Recreational Activities	• Fish habitat	• Increased access to fishing may reduce fish stocks.		
	• Water quality	• No change is anticipated.		
	• Social resources	• Improved access to waterfront will increase activities in the area.		• Positive impact.
	• Social resources	• Increased traffic movement to and from the site may result in congestion problems and disturbance to residents in the area.	• Redesign entrance to facility away from low income housing at grade. • Natural terrain buffer separates other residential areas from the marina entrance.	• Minimal impact due to redirecting traffic away from residential areas.
• Traffic Movement				

[illegible]

7. SUMMARY OF PRELIMINARY ASSESSMENT

The preliminary assessment of the proposed James Street Marina expansion identified a number of positive impacts in addition to some minor negative effects.

In general, the negative impacts identified were short-term effects attributable to site preparation and construction activities. These include such impacts as disturbance to fish and aquatic communities and increased water turbidity from sediment loadings. The associated impacts are largely mitigatable by undertaking activities in periods when inshore areas are not used by aquatic communities.

Potential impacts that may result from the placement of fill can be reduced by ensuring that fill meets provincial quality standards.

Possible impacts to the surrounding area from increased vehicular traffic to and from the marina site will be minimized by relocating the marina entrance.

Many long-term positive effects will result from the proposed expansion. The breakwater and dock structures will provide a protected area for the establishment of aquatic vegetation. Bank stabilization measures will incorporate fish habitat, improve near shore water quality and enhance the aesthetic appeal of the marina area. The island breakwater provides increased public access and recreational activity in the harbour area. Additional berth space will provide needed tie-up area and will enhance boating activity in the harbour.

APPENDICES

A. The Hamilton Spectator
January 2, 1990

No watercloset at the waterfront

The Hamilton Harbor Commissioners gave a public information session a week before Christmas to air their plans for the area around the Hamilton Yacht Club. They are installing dock space for over 200 boats to be administered as a public marina by the club.

A landfilled public pier and breakwater is to be extended well out into the harbor north of the Leander Boat Club, for fishing, strolling, tour boats, and out-of-town yachts.

Nowhere in any of this is a public washroom. The Harbor Commission spokesman, standing in front of a board covered with details and drawings, said that after all it was in the "conceptual stage".

A washroom will have to have plumbing, sewer lines, electricity, and someone to look after it. It should have been roughed in at any stage of the plan.

There are no public washroom facilities on the waterfront now. I think the commissioners expect the great unwashed to go home one way — driven away by bladder pressure.

Douglas Monk,
Hamilton.

Develop master plan for harbor — activists

By BETH MARLIN
The Spectator

HAMILTON HARBOR development, including a proposed \$3-million marina expansion, should be coordinated within a master plan by the Remedial Action Plan team, say some environmentalists.

Paul Muldoon and Brian McHattie lament the piecemeal planning of Hamilton harbor's development in a recent letter to Public Works Canada, the federal government agency charged with the environmental assessment of the proposed marina expansion.

"How do you plan a harbor (on an ecosystem basis) when all these things are happening individually?" Mr. Muldoon said yesterday. "I'm hoping (RAP) could be the body to sit down and set the vision we're talking about."

'Piecemeal'

According to their letter, the Hamilton Harbour Commissioners' proposed marina expansion is another example of how "...the harbor is continuing to be developed in an incremental, marginally co-ordinated, piecemeal fashion."

The two environmentalists urge the federal agency to consider the long-term vision of the harbor and to consult the RAP team on the proposed marina and public pier near the Hamilton Yacht Club.

RAP co-ordinator Keith Rodgers has also asked that Hamilton Harbour Commissioners and Public Works Canada brief the team on the proposal. It will also be discussed at the Jan. 31 meeting of the RAP team, which is expected to present its first draft priorities plan, Mr. Rodgers said.

However, Mr. Muldoon and Mr. McHattie are also critical in their letter of the RAP process, which they claim was designed to initiate long-term ecosystem planning.

"...the RAP has not taken a proactive role in commenting on harbor developments, especially land-use matters," they write. "We hope that the RAP will undertake more of this kind of role in the future."

Mr. Rodgers defended the RAP team's approach, saying it is a consultative process and has taken an active interest in harbor land-use and other developments involving Windermere Basin and the Perimeter Road.

The team is also expected to recommend an independent, proactive harbor council to monitor the implementation of the RAP recommendations, said Mr. Rodgers.

Mr. McHattie, a RAP stakeholder and a member of the Hamilton Naturalists' Club, could not be reached for comment yesterday.

The proposal to build dock facilities for 316 pleasure boats and a 145-metre (475-foot) long public pier/breakwater linked to Pier 4 Park was welcomed by members of the city's parks and recreation committee last month.

Evaluation

Public Works Canada is expected to deliver its initial environmental evaluation in February or March, said Mr. Muldoon.

~~Asper Khan~~ Public Works senior environmental co-ordinator, could not be reached for comment yesterday.

The letter also urges Public Works Canada to allow harbor filling only as a last resort and to closely scrutinize the proposed quality and method of lake filling for this project.

It also suggests the government consider the long-term vision of the harbor and its negative impact on current flows and sediment deposits in its assessment.

The proposal's impact on the planned waterfront park and other planned developments, as well as area traffic, should also be a top consideration in the assessment, the letter states.

B. The Hamilton Spectator
Wednesday, January 3, 1990

Harbor catalyst

Marina may be a plus

If Hamilton harbor is ever to achieve its full potential as a prime recreational asset, it needs to become a port for people — not just for industry. In that vein, a \$3-million proposal by the Hamilton harbor commissioners to build a marina and public pier near the Hamilton Yacht Club would appear, if done well, to be a step towards a waterfront with more public appeal.

The multi-faceted plan would include the building of docks for up to 316 pleasure boats and a 145-metre (475-foot) long public pier/breakwater. Linked to Pier 4 park, the pier would enhance public access to the bay — providing people with an opportunity to board tour boats, to fish, or simply to stroll and enjoy the picturesque west harbor view.

We have some reservations about the process, if not the project. It appears to have been proposed by the commissioners on their own, rather than as part of an overall ecosystem plan for the bay being developed by the Hamilton harbor stakeholder group.

The project is intended primarily to serve relatively affluent boaters as opposed to the city as a whole. As such, the community has an interest in a project that would be a net benefit to all Hamiltonians, not boaters alone.

The possible negative impact of the fill needed for the pier/breakwater on water quality of the bay, and the marina itself, should be closely examined by Public Works Canada. It will review the environmental aspects of the plan.

The commissioners, which would bear the entire cost, appear to have tried to blend the requirements of boat owners with those of the community at large. There's a need for an expanded recreational marina. The last slip expansion was in the early '70s and there's now an annual waiting list for use of the existing slips.

The proposal, which is likely to encourage a general sprucing up of the area between Pier 4 park and the HHC's Centennial dock, would be adjacent to several complementary HHC operations. It seems to be a practical site.

So far, the proposal has received generally favorable reaction from members of the city's parks and recreation committee and interested persons who studied it at a pre-Christmas drop-in session. Environmentalists aren't so sure. A full-scale public meeting would have been preferable in sampling opinion.

Adequate parking, for example, could well be a concern for residents in the adjacent neighborhood. The project consultants believe there's enough parking in the vicinity, but as activity intensifies in the area and the waterfront becomes more attractive, parking could become an issue.

Nevertheless, a well-planned marina would help to get the ball rolling in encouraging greater recreational use of the west harbor. It could be a catalyst in expediting the cleanup of the former Lax landfill site and the development of a park on the property.

Let's hope a large marina, rather than being detrimental to water quality or the condition of the harbor and the neighborhood, would provide more momentum for the cleanup envisioned in the bay remedial action plan.

While the marina proposal remains to be fully evaluated, the commissioners' interest in improving the recreational potential of the west harbor is a welcome sign of better things for the waterfront.

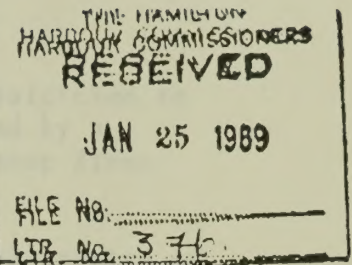


Environment Canada
Conservation and Protection

Environnement Canada
Conservation et Protection

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January 20, 1989

Mr R.A. Edwards P.Eng.,
Port Engineer
The Hamilton Harbour Commissions
605 James Street North
Hamilton, Ontario

Dear Mr Edwards:

Re: Proposal for New Breakwall Adjacent to Hamilton Yacht Club

Thank you for the opportunity to discuss your proposal for a new breakwall which could incorporate some of the goals of the HHRAP Stakeholders. The concept appears to have many advantages and is certainly worth pursuing further. Janet Elner and I agreed we would provide you with information to assist in further development of the concept and of the cost. The following is a list of initial criteria from DOE and DFO pertaining to environmental concerns and fisheries habitat for this purpose. I will be sending to you shortly a recommended course of action for proceeding with the project.

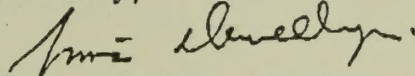
1. The ideal slope for the windward side of the breakwall is 1:10. For areas where this is not practical, such as in the deeper water, a slope of 1:7 could be used.
2. The material used for the slope should be clean stone or crushed cement with no other fines. An ideal structure would consist of irregular cobble, 2 feet in size with scattered clumps of larger boulders, 3 to 4 feet in size, on the upper portion of the slope to provide crevices for large fish. It is important that the stone pieces not be regular slabs.
3. An undulating breakwall which provides bays and protrusions on the windward side is ideal. The larger the indentations and the more of them, the better. The limitation will probably be the stability of the berm material and the cost of construction.

.../2

Any fines to be incorporated in the breakwall should be restricted to the central region of the breakwall and should be contained by a filter. During construction measures should be taken to keep fines from entering the water.

5. The rubble used to surround the fill (fines) in the central portion of the breakwall should be clean material, non porous and non friable.

Sincerely,



Simon Llewellyn, P. Eng.
Manager, Program Coordination
Environmental Protection
Ontario Region

cc: J. Elner
J. Huehn



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Your file / Votre référence

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Mr. A. Khan
Senior Environmental Coordinator
Public Works Canada
4900 Yonge St
Willowdale, Ontario
M2N 6A6
April 19, 1990

Dear Mr. Khan:

re: James St. Marina Expansion Project - Draft Initial Assessment

I am writing in response to your March 21 letter to S. Llewellyn requesting comments on the above noted document. On the whole, the document is a comprehensive assessment of potential environmental and socio-economic impacts that may result from the construction and operation of the expanded marina. However, we have some concerns that should be addressed and incorporated into the document.

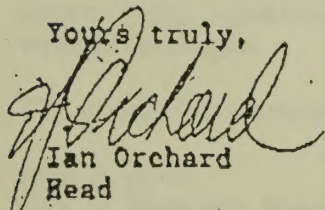
The first concern pertains to lakefilling. As stated in the document, the material will be tested according to existing provincial fill quality guidelines. Precautions must be taken to minimize the impact that a plume resulting from lakefilling would have on surrounding water quality and biotic habitat (reference should be made to the CCREM water quality guidelines for freshwater aquatic life and MOE drinking water guidelines). A silt curtain should be used during all stages of lakefilling, particularly when fine grained materials are being used. Sediment geotechnical characteristics need to be investigated prior to lakefilling. The sediments in the vicinity of the project need to be classified and their ability to support the load required for filling must be determined. The shear strength of the sediment will determine the rate at which the fill can be applied. If the fill is applied too quickly the sediment potentially could be displaced laterally resulting in resuspension of sediments and associated contaminants thus negatively impacting water quality.

The second major concern this office has is with the potential impact the project may have on water circulation and sedimentation patterns. The site is known to have poor circulation yet there has been no

modeling exercise to assess the project's impact on water circulation and water quality. Potential alterations in sedimentation patterns have not been investigated. Changes in such patterns may increase the likelihood and frequency of future maintenance dredging. Construction of an island breakwater and floating breakwaters may not mitigate these potential problems.

Should you have any questions or wish clarification on these comments feel free to contact either myself or Nelly de Geus (973-1086).

Yours truly,



Ian Orchard
Head
Ports, Harbours and Dredging

c.c. S. Llevellyn
K. Shikaze

JAMES STREET MARINA EXPANSION
PRESENTATION TO HAMILTON HARBOUR RAP STAKEHOLDERS

NOTES OF MEETING, 28 March 1990

A presentation on the proposed James Street Marina expansion was made to the Hamilton Harbour RAP Stakeholders on behalf of the Hamilton Harbour Commissioners.

The purpose of the presentation was to describe the proposed undertaking, answer any questions regarding the project and provide an opportunity to submit written comments.

The stakeholders present at the meeting include:

John Aikman
City of Hamilton Board of Education

Ken Minns
Department of Fisheries & Oceans

Brenda Axon
Halton Region Conservation
Authority

Peter Rice
Royal Botanical Gardens

Craig Boljkovac
Pollution Probe

Kim Shikaze
Environment Canada

Murray Charlton
Burlington Boating & Sailing Club

Gil Simmons
Central Area Plan Implementation
Committee

Kathy Drewitt
Hamilton Chamber of Commerce

Ed Smee
Conservator Society of Hamilton &
District

Hugh Eisler
Stelco Inc.

Ray Stewart
Ontario Ministry of the Environment

Ted Gill
Regional Municipality of
Hamilton-Wentworth

Bruce Tanaka
Dofasco Inc.

Brian Lang
Ontario Ministry of
Agriculture & Food

Chuck Towsley
Hamilton Harbour Commission

Brian McHattie
Hamilton Naturalist's Club

Ben Vanderburg
Hamilton Region Conservation
Authority

Sara Miller
C.E.L.A./Great Lakes United

Keith Rodgers
Coordinator, Hamilton Harbour RAP
(Not a Stakeholder)

The presentation was as follows:

- Mr. Bob Edwards, Port Engineer, Hamilton Harbour Commission introduced the presentation team:
 - Ansar Khan, Public Works Canada;
 - Gary McFarlane, Mar-Land Engineering;
 - Londa Mortson, M.M. Dillon Limited.
- Mr. Ansar Khan from Public Works Canada explained how the James Street Initial Assessment complied with the Federal Environmental Assessment Review Process (EARP).
- Mr. Gary McFarlane from Mar-Land Engineering gave a detailed description of the proposed undertaking including the various changes made to the design in response to agency concerns.

Following the presentation, the Stakeholders were given the opportunity to express their comments and ask questions. The questions and the responses are summarized below:

- Q What material will be used in the construction of the floating breakwater?
- R Pipe sections with wood baffles will be used in construction.
- Q What is the location of the storm and sanitary sewers outflows in the marina area? Will there be an impact on the circulation of the outflow water due to the placement of fill along the shoreline and for the island breakwater?
- R The two drains in this area are the James Street storm sewer and the Marshall drain. The James Street storm sewer has capacity for sanitary overflow. It drains into the harbour at the base of James Street, directly east of the proposed expansion area. The manager of the marina has not received any complaints relating to water quality from this outflow. The Marshall Drain is located west of Pier 4 park and will not effect circulation in the marina area.
- Q Explain the term "back-up land". How many parking spots will utilize the infilled portion of the shoreline?
- R Back-up land supports the on land facilities associated with the marina (i.e. parking, boat storage etc.) The fill area along the shoreline will accommodate approximately 30 parking spaces.
- Q If there is a shortage of parking at the marina, would this not encourage the use of public transit? The fill should not be placed in the harbour to provide private parking areas.
- R The number of parking spaces should be sufficient to support the marina use. Parking spaces are not intended for private use.

- Q One purpose of the fill along the shoreline is to create access to the Harbour. The Conservation Authority has, in the past, turned down applications for fill in which the purpose is private use.
- R The filled area will be used to gain access to the island breakwater. The parking areas will be for public not private uses.
- Q What areas of the marina will be accessible to the public?
- R The opportunity to acquire a boat slip will be available to the public.
- Q What type of public access will be available to the public? Will this include a passive form of recreation?
- R The island breakwater will be available to the public and will provide for passive recreational activities.
- Q Will the island breakwater be vegetated? What type of vegetation will be used?
- R Some vegetation will be planted but the types and species, etc., has not yet been determined.
- Q Will the public be permitted access to the island breakwater? Will this require crossing through the marina area?
- R Yes, the public will be permitted access to the island breakwater. Access to the island breakwater can be via the Pier 4 park or the marina.
- Q How long will the breakwater take to construct? At what point in the construction will armour covering occur?
- R Construction will take a minimum of six months to complete. Armouring, to reduce erosion, will occur as fill is added. Alterations of rip-rap armouring to create fish habitat will occur when all filling is complete.
- Q Will the tour boat docking be located east of the island breakwater?
- R The tour boat docking will be relocated on the east side of the breakwater.
- Q Will anyone be able to park in the marina area? Will there be a fee for parking? Will the parking area be screened (with trees, etc.) from the users of the Pier 4 park? Where would buses be permitted to park?
- R The parking area will be available to everyone. A fee for parking has not been decided. The possibility of screening will be examined. Buses could be accommodated in the overflow parking areas.
- Q Would the island breakwater be open at all hours of the day?
- R The breakwater would likely be open all day and would likely match the operational hours of the Pier 4 park.

- Q What is the compensation for fish habitat loss in areas receiving fill?
- R Suitable rip rap/rock rubble slopes will be used along fill areas. These slopes should provide a net gain in fish habitat.
- Q Will the floating breakwaters be permanent? How will they be anchored? What depth of water will they be placed in?
- R The floating breakwater will be permanent and will be anchored with cables and blocks in a water depth of approximately 9 m.
- Q Culverts will be used at the base of the breakwater. How much flow is expected through these culverts?
- R Wave action will generate the flow through the culverts.

Following the question period, the Stakeholders were encouraged to submit any subsequent comments pertaining to the marina development. Written submissions would be accepted during a two week period (ending 11 April 1990).

REFERENCES

- Federal Environmental Assessment Review Office, 1978. Guide for Environmental Screening.
- Hamilton Harbour Remedial Action Plan, March, 1988. A Discussion Document of the Goals, Problems and Options.
- Rochon, R. and L. Sarazin, 1987. Technical Guide to the Environmental Screening of Dredging Projects and Marina Developments in Eastern Canada, Environment Canada, Conservation and Protection.

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